	Test report according to ISO standard 5660-1	E 05/60 6/29/99 rev. c Test 238/02/311A
Parc de la porte Nord rue C. Colomb 62700 Bruay La Buisnière Tél. : 03.21.61.64.00 Fax : 03.21.61.64.01	Fire tests - - reaction to fire – Part 1: Heat release of building products (conical-calorimeter method)	page: 5/9

4 – Special comments

For each sample, three test-pieces are tested at irradiance of 50 kW/m².

Orientation during the test: horizontal

Rated output of the ventilation system: 0.024 m³/s.

The phase not exposed to the test-piece radiation is covered with aluminum foil of a thickness ranging between 0.03 and 0.05 mm, the shiny side in contact with the sample.

The thermo-oxidant degradation process is considered to be terminated when the percentage of oxygen in the combustion gases is **tending toward 20.95%**.


7 – Results

7-1 Sample identified: WITHOUT RETARDANT.

	Without retardant 1	Without retardant 2	Without retardant 3	Average	Standard deviation (%)
Initial mass (g)	8.06	7.85	7.84	7.92	1
Loss of mass (%)	95	100	98	97.69	2
Thickness (mm)	0.82	0.82	0.82	0.82	0
Ignition time (s)	16	17	16	16	3
THR (MJ/m ²)	19.64	21.47	21.49	20.87	4
MLR (g/s)	0.04	0.04	0.03	0.04	9
RHR max (kW/m²)	811.59	811.59	853.59	825.59	2
EHC MJ/kg	9.77	8.17	6.96	8.30	14
Total CO production (g)	0.17	0.15	0.15	0.16	6
Total CO ₂ production (g)	19.16	19.86	20.80	19.94	3
TSV (m ³)	0.19	0.22	0.21	0.21	6

THR *Total Heat release*
MLR *Mass loss rate*
RHR *Rate of heat release*
EHC *Effective heat of combustion*
TSV *Total smoke volume.*



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7-2 Sample identified: WITH RETARDANT.

	With retardant 1	With retardant 2	With retardant 3	Average	Standard deviation (%)
Initial mass (g)	4.14	4.32	4.32	4.26	2
Loss of mass (%)	97	97	100.00	97.95	2
Thickness (mm)	0.47	0.47	0.47	0.47	0
Ignition time (s)	17	15	16	16	5
THR (MJ/m ²)	7.08	8.10	7.31	7.50	6
MLR (g/s)	0.07	0.07	0.10	0.08	19
RHR max (kW/m²)	434.28	453.75	384.72	424.25	7
EHC MJ/kg	10.90	9.60	12.20	10.90	10
Total CO production (g)	0.40	0.42	0.43	0.42	3
Total CO ₂ production (g)	6.99	6.87	7.50	7.12	4
TSV (m ³)	0.29	0.26	0.33	0.29	9

THR *Total Heat release*
MLR *Mass loss rate*
RHR *Rate of heat release*
EHC *Effective heat of combustion*
TSV *Total smoke volume.*

Observations during the test:

- Giving off of white smoke in the first seconds of the test.
- Several flashes prior to actual ignition accompanied by melting (liquid phase) of the material.
- Slight carbonaceous residue (see photo 2).

